

REMARKS/ARGUMENTS

Claims 1-26 are pending. Claims 1, 5, and 10 have been amended. No new matter has been introduced. Applicants believe the claims comply with 35 U.S.C. § 112.

With regard to claim 5, Applicants note that, in one embodiment, a "real routing processor 504 controls routing of frame data transmitted directly between the host computer 1 and the storage device 3 according to routing information 514 as information on interconnection of devices connected to the network 5" (paragraph [0059] at page 9, lines 29-31). "At the step of making a decision on the need for virtualization as shown in Fig. 9 (101), if the routing processor 501 decides that virtualization is not needed, the real routing processor 504 performs routing of the received frame data according to the routing information 514 (103)" (paragraph [0094] at page 18, lines 25-28). Thus, the processor may route the data according to the routing information without the need for giving the data identification information.

Section 102 Rejection over Watanabe et al. (EP 1,130,514 A2)

Claims 1-26 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Watanabe et al. (EP 1,130,514 A2).

Claims 1-9

Applicants respectfully submit that independent claim 1 is novel and patentable over Watanabe et al. because, for instance, Watanabe et al. does not teach or suggest that when data stored in the first storage area has been transferred to a second storage area in one of the storage devices, the processor correlates the first identification information with a third identification information for identifying the second storage area and registers the first identification information and the third identification information in the volume mapping information.

Watanabe et al. discloses a data migration procedure flow in Fig. 9 in which port switching procedure (903) occurs **before** data migration procedure (904). "The data migration procedure is performed synchronously with the completion of the port switching procedure." Paragraph [0089] at column 12, lines 31-33.

In contrast, claim 1 recites registering a new correlation of identification information after data migration, i.e., when the data stored in the first storage area has been transferred to a second storage area in one of the storage devices. The new correlation ensures that the host computer can identify the destination volume (a volume to which data is transferred) using the same identification information that it uses to identify the source volume (a volume from which data is transferred) after data migration (paragraph [0008] at page 2, lines 24-28).

The identification information is used to identify a specific storage area of a storage device, and not merely a port number as in Watanabe et al. For instance, dependent claim 3 recites that the second identification information comprises real port identification of a storage device and LUN designating the first storage area. Watanabe et al. discloses port switching, but not registering correlation of identification information that includes port identification and LUN.

For at least the foregoing reasons, claim 1 and claims 2-9 depending therefrom are novel and patentable over Watanabe et al.

Claims 10-15

Applicants respectfully assert that independent claim 10 is novel and patentable over Watanabe et al. because, for instance, Watanabe et al. does not teach or suggest that when data stored in the first storage area has been transferred to a second storage area of one of the storage devices, the routing processor converts data with the first identification information into data with third identification information for identifying the second storage area and sends the converted data to the storage device having the second storage area.

As discussed above, Watanabe et al. discloses a data migration procedure flow in Fig. 9 in which port switching procedure (903) occurs before data migration procedure (904). Nothing in Watanabe et al. suggests converting identification information after data migration.

For at least the foregoing reasons, claim 10 and claims 11-15 depending therefrom are novel and patentable over Watanabe et al.

Claims 16-18

Applicants respectfully assert that independent claim 16 is novel and patentable over Watanabe et al. because, for instance, Watanabe et al. does not teach or suggest upon receipt of notification of completion of data transfer from the first storage device to the second storage device, correlating the first identification information with a third identification information identifying the second storage area containing the transferred data.

As discussed above, Watanabe et al. discloses a data migration procedure flow in Fig. 9 in which port switching procedure (903) occurs before data migration procedure (904). Nothing in Watanabe et al. suggests performing a new correlation of identification information after data migration.

For at least the foregoing reasons, claim 16 and claims 17-18 depending therefrom are novel and patentable over Watanabe et al.

Claims 19-23

Applicants respectfully assert that independent claim 19 is novel and patentable over Watanabe et al. because, for instance, Watanabe et al. does not teach or suggest a method of connecting a virtualization controller between a host system and a storage device that includes setting, on the virtualization controller, identification used by the host system to identify the storage area, identification information for the second port of the storage device, and virtual port identification information for the virtualization controller, which are correlated to define access of the storage area by the host system.

As discussed above, Watanabe et al. discloses a data migration procedure flow in Fig. 9 in which port switching procedure (903) occurs before data migration procedure (904). Watanabe et al. fails to teach or suggest a method of connecting a virtualization controller with the correlation of identification information as claimed.

For at least the foregoing reasons, claim 19 and claims 20-23 depending therefrom are novel and patentable over Watanabe et al.

Claims 24-26

Applicants respectfully assert that independent claim 24 is novel and patentable over Watanabe et al. because, for instance, Watanabe et al. does not teach or suggest a method of controlling data transfer in a system including a host system which uses first identification information to access a first storage area in one of a plurality of storage devices, wherein the first storage area includes data associated with second identification information identifying the first storage area, wherein the method comprises receiving a first request with the first identification information from the host system; sending a second request with the second identification information to the first storage area; and receiving data corresponding to the second request from the first storage area.

As discussed above, Watanabe et al. discloses a data migration procedure flow in Fig. 9 in which port switching procedure (903) occurs before data migration procedure (904). Watanabe et al. fails to teach or suggest a method of controlling data transfer using the correlation of identification information as claimed.

For at least the foregoing reasons, claim 24 and claims 25-26 depending therefrom are novel and patentable over Watanabe et al.

Section 102 Rejection over Nelson et al. (US 2004/0068637 A1)

Claims 1-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Nelson et al. (US 2004/0068637 A1).

Claims 1-9

Applicants respectfully submit that independent claim 1 is novel and patentable over Nelson et al. because, for instance, Nelson et al. does not teach or suggest that when data stored in the first storage area has been transferred to a second storage area in one of the storage devices, the processor correlates the first identification information with a third identification information for identifying the second storage area and registers the first identification information and the third identification information in the volume mapping information.

Nelson et al. discloses a virtual storage system that includes a virtual storage space having a plurality of virtual storage locations, a physical storage space including a plurality of physical storage locations configured to store data, a memory configured to store a plurality of activated pointers which associate a plurality of virtual storage locations with a plurality of the physical storage locations, and a controller configured to deactivate at least some of the activated pointers including extracting the deactivated pointers from the memory, to access a request pertaining to selected data associated with at least one of the deactivated pointers, to activate the deactivated pointers including providing the deactivated pointers in the memory providing reactivated pointers, and to modify at least one of the reactivated pointers responsive to the request. Nelson et al. is directed to avoiding or reducing the chances of data corruption within snapshot or other volumes, wherein journal entries may be applied to snapshot volumes upon reactivation and provision of the snapshot volumes in memory. Nelson et al. does not disclose or suggest registering a new correlation of identification information after data migration, to ensure that the host computer can identify the destination volume (a volume to which data is transferred) using the same identification information that it uses to identify the source volume (a volume from which data is transferred) after data migration (paragraph [0008] at page 2, lines 24-28). Nelson et al. further fails to teach or suggest that the second identification information comprises real port identification of a storage device and LUN designating the first storage area, as recited in dependent claim 3.

For at least the foregoing reasons, claim 1 and claims 2-9 depending therefrom are novel and patentable over Nelson et al.

Claims 10-15

Applicants respectfully assert that independent claim 10 is novel and patentable over Nelson et al. because, for instance, Nelson et al. does not teach or suggest that when data stored in the first storage area has been transferred to a second storage area of one of the storage devices, the routing processor converts data with the first identification information into data with third identification information for identifying the second storage area and sends the converted data to the storage device having the second storage area.

As discussed above, Nelson et al. discloses a controller configured to deactivate and reactivate pointers, and modify reactivated pointers, to avoid or reduce the chances of data corruption within snapshot or other volumes. Nothing in Nelson et al. suggests converting identification information after data migration.

For at least the foregoing reasons, claim 10 and claims 11-15 depending therefrom are novel and patentable over Nelson et al.

Claims 16-18

Applicants respectfully assert that independent claim 16 is novel and patentable over Nelson et al. because, for instance, Nelson et al. does not teach or suggest upon receipt of notification of completion of data transfer from the first storage device to the second storage device, correlating the first identification information with a third identification information identifying the second storage area containing the transferred data.

As discussed above, Nelson et al. discloses a controller configured to deactivate and reactivate pointers, and modify reactivated pointers, to avoid or reduce the chances of data corruption within snapshot or other volumes. Nothing in Nelson et al. suggests performing a new correlation of identification information after data migration.

For at least the foregoing reasons, claim 16 and claims 17-18 depending therefrom are novel and patentable over Nelson et al.

Claims 19-23

Applicants respectfully assert that independent claim 19 is novel and patentable over Nelson et al. because, for instance, Nelson et al. does not teach or suggest a method of connecting a virtualization controller between a host system and a storage device that includes setting, on the virtualization controller, identification used by the host system to identify the storage area, identification information for the second port of the storage device, and virtual port identification information for the virtualization controller, which are correlated to define access of the storage area by the host system.

As discussed above, Nelson et al. discloses a controller configured to deactivate and reactivate pointers, and modify reactivated pointers, to avoid or reduce the

chances of data corruption within snapshot or other volumes. Nelson et al. fails to teach or suggest a method of connecting a virtualization controller with the correlation of identification information as claimed.

For at least the foregoing reasons, claim 19 and claims 20-23 depending therefrom are novel and patentable over Nelson et al.

Claims 24-26

Applicants respectfully assert that independent claim 24 is novel and patentable over Nelson et al. because, for instance, Nelson et al. does not teach or suggest a method of controlling data transfer in a system including a host system which uses first identification information to access a first storage area in one of a plurality of storage devices, wherein the first storage area includes data associated with second identification information identifying the first storage area, wherein the method comprises receiving a first request with the first identification information from the host system; sending a second request with the second identification information to the first storage area; and receiving data corresponding to the second request from the first storage area.

As discussed above, Nelson et al. discloses a controller configured to deactivate and reactivate pointers, and modify reactivated pointers, to avoid or reduce the chances of data corruption within snapshot or other volumes. Nelson et al. fails to teach or suggest a method of controlling data transfer using the correlation of identification information as claimed.

For at least the foregoing reasons, claim 24 and claims 25-26 depending therefrom are novel and patentable over Nelson et al.

Section 102 Rejection over McKean et al. (US 6,647,387 B1)

Claims 1-26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by McKean et al. (US 6,647,387 B1).

Claims 1-9

Applicants respectfully submit that independent claim 1 is novel and patentable over McKean et al. because, for instance, McKean et al. does not teach or suggest that when data stored in the first storage area has been transferred to a second storage area in one of the storage devices, the processor correlates the first identification information with a third identification information for identifying the second storage area and registers the first identification information and the third identification information in the volume mapping information.

McKean et al. discloses a system administrator that configures a data structure in a memory of the controller such that at least a subset of the plurality of port IDs are mapped to particular ones of the number of storage volumes, wherein the controller grants the computer access to only those storage volumes whose mapped port ID corresponds to the target port ID specified in the access request. While McKean et al. makes use of a mapping table of port IDs, it does not disclose or suggest registering a new correlation of identification information after data migration, to ensure that the host computer can identify the destination volume (a volume to which data is transferred) using the same identification information that it uses to identify the source volume (a volume from which data is transferred) after data migration (paragraph [0008] at page 2, lines 24-28). McKean et al. further fails to teach or suggest that the second identification information comprises real port identification of a storage device and LUN designating the first storage area, as recited in dependent claim 3.

For at least the foregoing reasons, claim 1 and claims 2-9 depending therefrom are novel and patentable over McKean et al.

Claims 10-15

Applicants respectfully assert that independent claim 10 is novel and patentable over McKean et al. because, for instance, McKean et al. does not teach or suggest that when data stored in the first storage area has been transferred to a second storage area of one of the storage devices, the routing processor converts data with the first identification information into data with third identification information for identifying the second storage area and sends the converted data to the storage device having the second storage area.

As discussed above, McKean et al. discloses a controller that grants the computer access to only those storage volumes whose mapped port ID corresponds to the target port ID specified in the access request. Nothing in McKean et al. suggests converting identification information after data migration.

For at least the foregoing reasons, claim 10 and claims 11-15 depending therefrom are novel and patentable over McKean et al.

Claims 16-18

Applicants respectfully assert that independent claim 16 is novel and patentable over McKean et al. because, for instance, McKean et al. does not teach or suggest upon receipt of notification of completion of data transfer from the first storage device to the second storage device, correlating the first identification information with a third identification information identifying the second storage area containing the transferred data.

As discussed above, McKean et al. discloses a controller that grants the computer access to only those storage volumes whose mapped port ID corresponds to the target port ID specified in the access request. Nothing in McKean et al. suggests performing a new correlation of identification information after data migration.

For at least the foregoing reasons, claim 16 and claims 17-18 depending therefrom are novel and patentable over McKean et al.

Claims 19-23

Applicants respectfully assert that independent claim 19 is novel and patentable over McKean et al. because, for instance, McKean et al. does not teach or suggest a method of connecting a virtualization controller between a host system and a storage device that includes setting, on the virtualization controller, identification used by the host system to identify the storage area, identification information for the second port of the storage device, and virtual port identification information for the virtualization controller, which are correlated to define access of the storage area by the host system.

As discussed above, McKean et al. discloses a controller that grants the computer access to only those storage volumes whose mapped port ID corresponds to the

target port ID specified in the access request. McKean et al. fails to teach or suggest a method of connecting a virtualization controller with the correlation of identification information as claimed.

For at least the foregoing reasons, claim 19 and claims 20-23 depending therefrom are novel and patentable over McKean et al.

Claims 24-26

Applicants respectfully assert that independent claim 24 is novel and patentable over McKean et al. because, for instance, McKean et al. does not teach or suggest a method of controlling data transfer in a system including a host system which uses first identification information to access a first storage area in one of a plurality of storage devices, wherein the first storage area includes data associated with second identification information identifying the first storage area, wherein the method comprises receiving a first request with the first identification information from the host system; sending a second request with the second identification information to the first storage area; and receiving data corresponding to the second request from the first storage area.

As discussed above, McKean et al. discloses a controller that grants the computer access to only those storage volumes whose mapped port ID corresponds to the target port ID specified in the access request. McKean et al. fails to teach or suggest a method of controlling data transfer using the correlation of identification information as claimed.

For at least the foregoing reasons, claim 24 and claims 25-26 depending therefrom are novel and patentable over McKean et al.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,



Chun-Pok Leung
Reg. No. 41,405

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 650-326-2400
Fax: 415-576-0300
RL:rl
60574163 v1